

THE ARMY BRIGADE COMBAT TEAM: CAN IT MEET THE ARMY'S NEEDS UNTIL 2010?

**A MONOGRAPH
BY
Major Henry A. Arnold
Infantry**



**School of Advanced Military Studies
United States Army Command and General Staff
College
Fort Leavenworth, Kansas**

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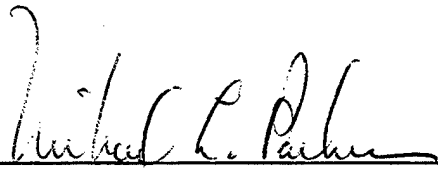
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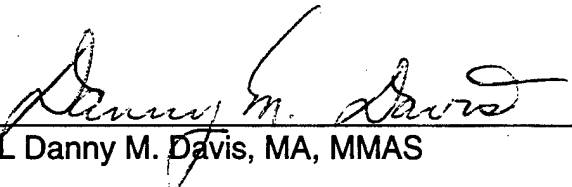
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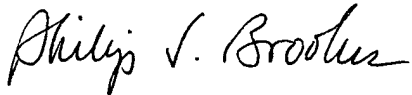
Approved by:



COL Michael L. Parker, MMAS Monograph Director



COL Danny M. Davis, MA, MMAS Director, School of Advanced
Military Studies



Philip J. Brookes, Ph.D. Director, Graduate Degree
Program

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ABSTRACT

THE ARMY BRIGADE COMBAT TEAM: CAN IT MEET THE ARMY'S NEEDS UNTIL 2010? MAJ Henry A. Arnold, USA, 62 pages.

This monograph addresses the effectiveness of the current Army brigade combat team structure as the Army begins move into the 21st century. More specifically, it addresses the the period between now and 2010, when the Force 21 Initiative will begin implementation.

The monograph uses a set of criteria to evaluate the effectiveness of the current Army brigade combat team structure. This criteria is combined arms, command and control, lethality and survivability, mobility, and flexibility. The USMC Marine Expeditionary Unit is scrutinized as a possible example of how another service has organized forces for ground combat for current and near future operations. Additionally, an analysis of Army and Marine involvement in Grenada and Somalia serves as a vehicle to observe the actual performance of these units and compare it with current doctrine.

The monograph argues that the Army has an effective doctrine regarding the organization and employment of its brigade combat teams, and does not require radical change to be more effective. The monograph supports this conclusion by evaluating the brigade combat team against the criteria, and by observing recent actions in Grenada and Somalia.

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I. Introduction

Since the close of the Vietnam war, the United States Army has deployed combat troops to a variety of locations under various rules of engagement. Army forces have achieved varying degrees of success around the world based on the firepower, mobility, and protection of the units involved. In most cases, the Army's response when tasked to deploy combat troops for a contingency operation is to deploy a brigade combat team of a light (to include airborne and Ranger) *or* a heavy (mechanized infantry or armor and armored cavalry) combat team when a mixture of *both* type forces would be better.

Light and heavy organizations in the Army each have their inherent capabilities and limitations. For example, light forces lack relative firepower, mobility, and protection when compared to heavy units. This tends to limit their effectiveness and survivability in situations such as operation Desert Storm. However, the infantry-based light brigade combat team has a smaller logistical "tail", is rarely restricted by terrain, and has a higher capacity for patrolling with infantry. These factors make the light task force ideal for use in restrictive terrain, urban areas, or in Military Operations Other Than War (MOOTW)¹ where patrolling with actual soldiers rather than machines is more beneficial to satisfying the purpose of the mission. The heavy brigade combat team has greater mobility, more protection afforded its troops from armored vehicles, and greater potential fire power than light infantry. However, the heavy brigade combat team requires vastly larger logistical support, has less infantry, and is easily hampered by restrictive terrain. The aspects that make a heavy force ideal for high intensity combat in the desert or in central Europe make it difficult to rapidly deploy for contingency operations and

participate in MOOTW missions. This stark difference in the types of forces the Army deploys for operations can result in situations where the force deployed is not properly task-organized for the tactical and physical environment in which it will operate.

Our doctrine requires us to fight as a combined arms team², yet our doctrine assumes that battalions and brigades will fight as part of a division or corps with the requisite assets to enable battalions and brigades to fight with combined arms. Increases in technology have made it possible for combat units to become “smarter” (such as increased situational awareness, digitization of the battlefield, etc.), smaller, more mobile, and much more lethal. In light of such changes, some have suggested that we should look at how we organize our forces, and consider implementing changes that allow the flexibility to deploy a combined arms team without the need for deploying a division or corps. This thought process is driven by the potential advantages of increased technology, and the desire to eliminate situations where we create an *ad hoc* force in which the components have little familiarization with each other and the command and control structure is unfamiliar.

Several other types of units readily appear as possible organizational examples to look in to when reviewing the current brigade combat team (BCT) structure. The Army Armored Cavalry Regiment (ACR), the United States Marine Corps (USMC) Marine Expeditionary Unit (MEU), and some foreign organizations (France and the UK have organizations within their armies that meet some or most of the criteria) are the most likely candidates. Sensible guidelines for determining suitable comparison should be

based on national requirements, equipment, and a recent history of operations that are similar to Army units.

Although the ACR seems to meet the criteria established by the model for this monograph, it is too robust in armored vehicles and too poor in infantry to be ideally suited for rapid deployment and versatile operations throughout the entire spectrum of conflict from MOOTW to high intensity war with a peer opponent.³ The ACR would have to make so many changes to its structure to allow it to meet such criteria that it would no longer be capable of truly fulfilling its critical role as an ACR.⁴

The MEU provides a very promising example to compare with Army units. It is employed to achieve the same national objectives, has most of the same equipment as the Army, and has a recent history of operations comparable to that of Army units.

Although some foreign nations have units that may bear observing, they will not be reviewed in this monograph. This is because such foreign units have different national requirements, equipment, and recent history of operations when compared to Army units. Attempts to compare and contrast the organization, training, and equipment of such organizations with our own might prove too difficult within the parameters of the monograph.⁵

The MEU appears to be the most promising candidate for comparison and contrast with the Army BCTs. It appears to generally meet all the model criteria on the surface, it has most of the same equipment as the Army, and has a recent history of operations comparable to that of Army units.

This issue is important, because the Army has reached a point in its existence where it must grow smaller yet retain a high degree of lethality and rapid deployability to continue to be effective on the future battlefield. The Army no longer faces one massive known threat that can define its primary mission and provide focus for organization and training. The threat is multi-faceted, and can come from various known and yet unknown sources around the globe. The Army must find a way to become better organized, or make better use of the organizations it has. By doing so, it will be more capable of accomplishing any mission while maintaining the ability to win against any opponent on the future battlefield.

The intent of this monograph is to argue that the present organization of the Army's brigade combat teams is not sufficient to carry on into the twenty-first century. This monograph will answer the primary research question: Can the Army brigade combat team organization effectively meet the Army's needs out to 2010?

A model for an effective combat organization for the twenty-first century will serve as the basis for comparison and will assist in answering the primary question. The model consists of five elements: *combined arms, command and control (C2), lethality and survivability, mobility, and flexibility*.⁶ This model will provide the basis for analysis in chapter V.

This monograph will also answer four subordinate questions in support of the primary question. First, what will be some of the characteristics of the future battlefield? Although it is impossible to predict with total certainty what the future battlefield will be like, we can look at past and current trends in conflict to paint a reasonably clear picture

of the future battlefield environment. Understanding the future environment of the battlefield will help shape the type of force necessary to succeed on that battlefield. The second supporting question asks if there are other organizational models that can serve as examples for improving the current organization of the brigade combat team. Other U.S. and some foreign organizations may provide some organizational insight for future operations that we can adapt for use in the current BCT structure. Third, what are the similarities and differences between the MEU and the battalion task force? It is important to understand what similarities and differences exist in the organization and missions of these two organizations in order to establish a basis of comparison and understand the significance in the difference of organization between the MEU and the Army brigade combat team as they are applied against the model for evaluation. Such a comparison will prove useful during a historical review of recent operations and the analysis of all research at the end of the monograph. Fourth, how can we improve the current organization of the Army brigade combat team? By looking at the results of the comparison between the two different force structures, evaluating them against the model, and reviewing several recent operations, the monograph should be able to suggest some improvements to the current organization of the Army brigade combat team.

The intended audience for this research is broad. Planners, doctrine writers, and leaders at all levels need to understand the value of the effects created by the application of combined arms within the entire spectrum of conflict from OOTW to high intensity conflict. All must reflect on the central theme of this monograph, which is that the Army must organize and train brigade combat teams to truly fight as combined arms teams.

This monograph is purposely limited in several areas in order to focus on answering the primary research question and supporting questions, and to keep the physical size of the monograph at a manageable level. First, the monograph will only look at the future out to 2010. This is because the majority of the anticipated organizational and equipment changes scheduled for the Force XXI initiative will not occur until 2010.⁷ This will also prevent too much speculation on the effects of future systems, technologies, and social, economic, and political developments. Second, the monograph will not debate the roles or possible roles of the Army and the Marine Corps. Third, the monograph will not compare and contrast the strengths and weaknesses of airborne and amphibious operations. Both methods are traditional options of forced entry and permissive entry operations for contingency operations, and both have inherent strengths and weaknesses. The focus of research and discussion for this monograph lies in the relative effectiveness of employed forces via the application of combined arms in the actual operation rather than the methods for getting them there. Fourth, the monograph will not examine the social, political, and economic influences on warfare. Fifth, this monograph will not discuss specific systems within the Force XXI initiative, nor will it examine the issues of the Force XXI initiative itself. The focus of the research question is on the ability of the current BCT organizational structure to adequately support national and Army objectives up to the implementation of the Force XXI initiative. Finally, this monograph will not discuss altering the structure of the Army division and corps organizations. The Army and the nation must continue to retain the ability to fight

major regional conflicts with peer opponents using divisions and corps to decisively defeat the enemy.

II. Organizational Background

This chapter will provide a detailed look at the organization of the Army BCT and the USMC MEU. First, it will describe the general structure of the Army BCT, and then describe the specific structure of the various types of Army BCTs. Second, this chapter will describe the structure of the USMC MEU. Finally, this chapter will discuss the similarities and differences between the Army BCT and the USMC MEU.

The Army Brigade Combat Team

The U.S. Army has always had the mandate to train and equip forces necessary to engage and defeat possible enemies on various terrain and under different climatic and tactical environments.⁸ To meet such a task, the Army has maintained several different types of combat formations in its inventory to give it the flexibility it needs. These formations generally consist of heavy (armored and mechanized), light, and special operations.⁹ Heavy forces, classified as armor or mechanized infantry, generally have the same force structure when organized for combat. Light forces fall into three subcategories, and are classified as light, airborne, or air assault.

The typical Army brigade organized for combat into a brigade combat team can consist of two or more maneuver battalions plus additional combat support (CS) and combat service support (CSS) elements under various command or support relationships.¹⁰ Of all the organizations found within a brigade, only the headquarters and headquarters company actually *belongs* to a brigade. All the other elements are

actually organic to either division or corps and are placed in the brigade organization under a command or support relationship.

The typical heavy brigade combat team (BCT) usually contains mechanized infantry and armor battalions for its maneuver battalions. Sometimes, the heavy BCT can include a light infantry battalion as one of its maneuver battalions. The heavy BCT may also contain an attack aviation battalion under operational control (OPCON) depending on the mission. The typical heavy BCT also contains a combat heavy engineer battalion, a self-propelled (SP) field artillery battalion in direct support (DS), a DS forward support battalion to provide CSS support to the BCT, an air defense artillery (ADA) company, and signal, chemical, and MP platoons in DS (see appendix A)¹¹.

The typical light family of BCTs (which includes airborne and air assault) has basically the same structure as the heavy BCT with the exception that light BCTs have only an engineer company compared to the engineer battalion contained in the heavy BCT (see appendix B)¹². However, light, airborne, and air assault brigades organized for combat differ from each other based on the role and structure of their parent divisions.

The airborne brigade organized into a BCT resembles the light BCT, but it typically has OPCON over a tank company and an aviation battalion that includes an attack helicopter company and a lift company (see appendix C)¹³. This is because the airborne division contains an armor battalion and more aviation assets in its structure than the light infantry division. However, the cancellation of the "Armored Gun System" (AGS)¹⁴ program in 1996 and the subsequent retirement of the obsolete M551 Sheridan light tank from the Army's inventory currently leaves the airborne division without an

organic armored battalion. To compensate for this gap in the airborne division structure, a mechanized infantry division will provide a mechanized battalion task force ready to deploy with the airborne division. Mechanized company/teams from this heavy battalion task force are tentatively organized for combat to be under the operational control of each of the maneuver brigades of the airborne division.

The air assault brigade organized for combat usually contains the attachment of an aviation battalion that typically contains an aerial reconnaissance company, an attack battalion, and three lift companies (see appendix D). This tremendous availability of aviation assets to the air assault BCT is because the air assault division contains two aviation brigades: one attack brigade and one lift brigade.¹⁵

Although the Ranger regiment constitutes a very capable forced entry force that is rapidly deployable for any type of operation, it is a special operations force that should not be compared to brigade combat teams when discussing the application of combined arms effects by brigade size forces within the spectrum of conflict from MOOTW to high intensity conflict.¹⁶

The Marine Expeditionary Unit

The USMC has had a long tradition of deploying contingents of Marines around the world to protect U.S. interests or to conduct limited offensive operations in support of national objectives. However, the USMC can trace its current organizational structure to the 1952 amendment (Title 10, U.S. Code) to the 1947 National Security Act.¹⁷ This act prescribed a combined arms force that is naval in character, expeditionary in nature, and

able to operate in any region of the world without U. S. bases or facilities. The organization of the MEU reflects this mandate.

The MEU is an organization that the USMC refers to as a *Marine Air-Ground Task Force (MAGTF)*. The MAGTF is the combined arms force afloat that can operate across the full spectrum of conflict.¹⁸ A MAGTF can be of any size, but all have the same organizational structure: a command element (CE), a ground combat element (GCE), an aviation combat element (ACE), and a combat service support element (CSSE). MAGTFs are formed by drawing forces from Marine divisions, air wings, and force service support groups, and include infantry, armor, artillery, engineer, reconnaissance, aviation, and logistics elements. The MEUs are the most common form of MAGTF, are continuously deployed on Navy ships in specific regions of the world, and constitute the primary USMC means of responding to contingency operations world wide. The typical MEU, as a MAGTF, consists of a ground combat element, an air combat element, and a combat service and support element. The GCE is organized around a reinforced Marine infantry battalion. The ACE is composed of a reinforced medium helicopter squadron designed to provide lift, reconnaissance, and attack functions that may include fixed wing attack aircraft. The CSSE consists of task-organized elements from the permanent Force Service Support Groups, to provide the MEU with all necessary logistical support. The CSSE is capable of supporting the MEU for fifteen days once it deploys ashore for operations (see appendix E)¹⁹.

In Army terms, the MEU resembles a brigade size force consisting of two maneuver battalion equivalents and a forward support battalion equivalent. If a MEU is

deployed to a region where it may require additional ground forces, it can be reinforced with an additional infantry battalion. This would bring the number of maneuver elements in the MEU to three. However, the *typical* GCE organization of a MEU is one reinforced infantry battalion. The ACE can similarly be augmented if the MEU is expected to accomplish specific missions requiring more or certain types of aircraft.²⁰ It is important to reiterate that the MEU organization will always include a GCE, and ACE, and a CSSE. This organization of a ground combat element consisting of light infantry and armored vehicles and an air combat element consisting of fixed-wing and rotary-wing attack aircraft and lift assets provides the MEU commander a great deal of flexibility. The MEU commander can choose to employ his MEU as predominantly mechanized by using amphibious assault vehicles, light armored vehicles, and tanks. In severely restrictive terrain, he can deploy his force as a predominantly light force by keeping the armored vehicles on the ships, and using the ACE to provide mobility for the MEU. In an urban environment, the MEU commander can employ the MEU as a combination of mechanized, light, and air assault. Such a structure gives the MEU a great deal of flexibility to task-organize itself based on the mission to cover a wide range of contingency operations.

Comparison and Contrast

The Army BCT and the USMC MEU are similar in that they both consist of multiple maneuver battalions under the command and control of a colonel and a coordinating staff. Both organizations are neither pure nor permanent structures. They are organized for combat by placing maneuver, CS, and CSS elements under the control

of a brigade (or MEU) headquarters. The Army's airborne BCT most closely resembles the MEU in physical structure because it contains armored vehicles along with attack and lift helicopters in addition to its infantry battalions. The Army heavy BCT, when organized with a light infantry battalion, also contains some structural similarities with the MEU. However, it does not normally possess the lift helicopter assets that provide the capability of conducting air assault operations.

The most obvious difference between the two organizations is that the MEU has fixed-wing strike, observation, and refueling aircraft within its structure, whereas the Army BCT has none. Additionally, the organization of a MEU always includes the GCE, the ACE, and the CSSE. Army divisions certainly have the capability to place aviation assets OPCON to their BCTs when organizing for combat (as depicted in the suggested "typical" organization diagrams in FM 71-3 and FM 7-30), but they are mission dependent and not a guarantee of the presence of aviation assets in those organizations. The Army air assault BCT certainly has a significant attack and lift aviation capability, but lacks the armored vehicles found in the MEU, airborne, and heavy BCTs. The light BCT typically does not have aviation assets or armored vehicles in it when organized by its parent division for combat.

The Army BCT is still designed to operate as part of a division or corps to defeat an enemy army. The USMC refers to its "expeditionary nature" for force design concerning the MEU, and does not expect it to operate as part of a division or corps in a major battle or war.²¹ This discussion of the missions, capabilities, and limitations of these organizations will be covered in greater detail in the next chapter.

Some Army BCTs are similar in structure to the MEU, and therefore possess the same mission flexibility. Although some Army BCTs are not similar in structure, they have specific mission parameters based on the Army's mandate. The "expeditionary nature" of the MEU which provides it with a capable structure for contingency operations is shared by the Army's airborne and heavy BCTs.

III. Missions, Capabilities, and Limitations

This chapter will review the mission, capabilities, and limitations of Army BCTs and the USMC MEU. First, it will focus on the Army BCT by discussing the mission, capabilities, and limitations of the heavy and light family of BCTs. Then this chapter will discuss the mission, capabilities, and limitations of the MEU.

The Army Brigade Combat Team

The Army's brigade combat teams normally operate as part of a division to perform missions assigned by the division commander. The division commander controls various maneuver, combat support, and combat service support assets based on his division organization. He can task-organize these assets under the command and control of subordinate brigades to accomplish specific missions. Additional assets may come from corps, for placement in a BCT organization for combat under one of the command or support relationships discussed earlier. Each BCT is task-organized based on the mission assigned to it. The typical BCT controls from two to five maneuver battalions. Army doctrine requires all BCTs to conduct operations across the entire spectrum of conflict from high intensity war with a peer opponent to MOOTW.²² FM 100-5, Operations also discusses the requirement to fight as a combined arms team:

Army forces prefer to fight as a combined arms team. Combined arms warfare is the simultaneous application of combat, CS, and CSS toward a common goal.²³

Prior to the end of the Cold War, the Army's primary focus was to defeat Soviet motorized rifle and tank divisions of the Warsaw Pact in Europe. The organization and equipment of the Army was designed to meet this task. The Cold War enemy, in the form of the Warsaw Pact, also provided a tangible training focus for the Army. The Army had to train and organize to mobilize, deploy, and fight such a threat by fielding armies consisting of divisions and corps capable of sustained high intensity combat in Europe with a peer opponent.

Although the Cold War is over, and the massive threat posed by the Warsaw Pact appears to no longer exist, the Army must still maintain the ability to deploy and fight against a large and modern mechanized army as evidenced by Operation Desert Storm. The end of the Cold War decreased the immediate threat of a massive peer opponent in the form of the Soviet Union, and brought more MOOTW activities to the forefront. However, a variety of threats and situations around the world also require the Army to rapidly deploy forces to defend national interests or participate in MOOTW that range from aiding hurricane victims in Florida to enforcing peace in Bosnia. The Army always had to accomplish such missions during the Cold War, but the primary focus was always the Warsaw Pact in Europe.²⁴

Recent doctrinal literature in the Army reflects this change. Two field manuals (FMs) in the Army concern the organization and employment of ground maneuver brigades: *FM 7-30, The Infantry Brigade*, and *FM 71-3, The Armor and Mechanized Infantry Brigade*. Both were recently updated (1995 and 1996 respectively) to address

recent changes in the world and their effect on Army operations. Both FMs state that the primary mission of the brigade is to deploy on short notice to destroy, capture, or repel enemy forces. FM 71-3 discusses the use of “maneuver and shock effect” to accomplish its mission based on the mobility and striking power of armored vehicles.²⁵ Fm 7-30, being an infantry manual, uses the words “close with the enemy” to accomplish the same mission based on the close combat nature of infantry.²⁶ Both manuals point out that while the primary purpose of Army brigades is to fight conventional battles as part of a division or corps, they must also have the versatility to be multifunctional by operating throughout the full spectrum of conflict. This may include deployment as a BCT without a division or corps. Although the language is slightly different in the two doctrinal manuals concerning heavy and light BCTs, they express the same mission for all Army BCTs. The primary mission of all Army BCTs is to deploy on short notice to destroy, capture, or repel enemy forces.

According to FM 71-3, the armored and mechanized BCT has the following capabilities:

- * Conducts sustained combat operations with proper augmentation.
- * Accomplishes rapid movement and deep penetration.
- * Exploits success and pursues a defeated enemy as part of a larger formation.
- * Conducts security operations for a larger force.
- * Conducts defensive, retrograde, and other operations.
- * Conducts offensive operations.
- * Conducts operations with light and special operations forces.
- * Conducts MOOTW.
- * Deploys rapidly onto pre-positioned equipment²⁷

FM 71-3 also lists some limitations of the heavy BCT. Its mobility and firepower are restricted by urban areas, dense jungles and forests, very steep and rugged terrain, and

significant water obstacles.²⁸ Such terrain can also create vulnerabilities in heavy BCTs by reducing the "stand off" range of the armored vehicles while allowing enemy soldiers and vehicles to get closer with armor defeating weapon systems. Augmentation by light infantry in these circumstances increases survivability and chances of mission success. Its strategic mobility is limited by the heavy equipment in its structure. The heavy BCT also has a very large logistical tail due to its consumption rate of ammunition, fuel, and repair parts. The relative lack of infantry can also cause difficulty in performing some MOOTW activities, since many activities take place in urban areas or require a great deal of dismounted patrolling to accomplish the mission. Additionally, the nature or location of many MOOTW activities would not support a large number of armored vehicles or the logistical support required for them. The presence of many armored vehicles (particularly tanks) may also be in contradiction to some MOOTW missions.

FM 7-30 discusses the general capabilities of the light BCT. It states:

The infantry brigade can be deployed rapidly and can be sustained by an austere support structure. Its training emphasizes fighting during limited visibility in restrictive terrain such as forests, jungles, mountains, and urban areas. The brigade conducts operations against light enemy forces in all types of terrain and climate conditions. When augmented with forces, weapon systems, and equipment, the infantry brigade can perform its mission throughout the entire range of military operations. The brigade may participate in deep and rear operations at division and corps level.²⁹

FM 7-30 also points out additional inherent capabilities of the light BCT.³⁰ Light BCTs can conduct operations in all MOOTW activities. The light BCT can conduct small unit operations, and operate in conjunction with armored or mechanized forces and special operations forces. All light BCTs are also capable of conducting amphibious and air assault operations if augmented. The air assault BCT has the assets to conduct air assault

operations, and has the limited ability (based on the range of its helicopters) to conduct forced entry operations. The airborne BCT is capable of conducting airborne operations as a means of forced entry or to support deep operations. The light family of BCTs are well suited for urban operations and all MOOTW activities because of the infantry intense nature of such operations. However the effectiveness of light infantry in such terrain would be greatly enhanced by the presence of some armored vehicles to provide firepower and protection, particularly in an urban environment where the capabilities of light infantry and armored vehicles can complement each other.

The light family of BCTs have some limitations that affect their employment. They lack the relative firepower, mobility, and inherent protection of heavy BCTs. Although the significant lift aviation assets available to an air assault BCT can arguably provide high mobility, they are not as survivable as armored vehicles, nor do they possess the unlimited duration of armored vehicles. The ground maneuver battalions of light BCTs move at the rate that a foot soldier can walk. This includes airborne and air assault infantry who are foot bound once they arrive at the battlefield by parachute or helicopter. Any organic vehicles in these organizations can move soldiers or supplies but not both at the same time. The lack of armored vehicles in light organizations means that foot soldiers are extremely vulnerable to artillery and NBC (nuclear, biological, and chemical) attacks while moving. They are also more exposed to the elements of the terrain in which they are operating. The relatively austere CSS structure of light units requires external augmentation when operating for extended periods of time or when armor or mechanized elements are attached. Just as urban areas and restrictive terrain are more dangerous to

heavy BCTs, open areas devoid of rugged terrain or dense vegetation such as deserts and plains place light BCTs at considerable risk when opposing a mechanized opponent.

The USMC MEU

The MEU has the mission of being the forward deployed and immediately responsive sea-based Marine force to project power anywhere in the world.³¹ MEUs are continuously deployed at sea for this purpose. The mission and purpose of the MEU has its roots in traditional USMC actions and in the formal outline of missions and responsibilities as outlined in the 1952 amendment to the National Security Act of 1947 as mentioned in the last chapter. The USMC does not expect to win wars by fielding armies consisting of multiple corps. It expects to protect U.S. interests abroad in peace time, and contribute to winning wars by winning battles at the division and corps level if necessary. It is important to note that USMC doctrine does not call for its MEUs to fight as independent MEUs in war. The Marines intend to deploy divisional size MAGTFs for this purpose called Marine Expeditionary Forces (MEF). The typical MEF is commanded by a Marine lieutenant general, and consists of a Marine division (GCE), a Marine air wing (ACE), and a MEF service and support group (CSSE) roughly equivalent to a reinforced (with CSG assets) Army DISCOM. It is entirely possible that a MEF commander could direct the organization of a MEU from the MEF to conduct specific missions in support of MEF operations.³²

The role and mission of the MEU allow it to focus primarily on contingency operations, and the capabilities and limitations of the MEU reflect this. The USMC is a unique organization that is infantry based, but still contains the armored and air assets

within its structure to maintain the ability to deploy combined arms teams in the form of MAGTFs. Therefore, the USMC has not divided itself into heavy or light categories as the Army has.

The most significant capability of the MEU is that it is trained and equipped to conduct amphibious landings as part of forced entry (such as in Grenada) operations, NEO, or to gain access to a remote region. Fleet Marine Force Reference Publication (FMFRP) 2-12, *Marine Air-Ground Task Force: A Global Capacity* describes this important capability:

Most important is the MEU's capability to conduct quick reaction long range amphibious raids from over-the-horizon without electronic emissions, during periods of darkness, and under adverse weather or sea conditions within 6-hour notice.³³

The MEU also has a high degree of versatility built in to it because the commander can task-organize the MEU for any mission based on the threat, terrain, and the mission. The MEU can operate in open terrain using its armored vehicles, aircraft, and trucks for mobility, or it can operate in restrictive terrain using its significant lift aviation assets for mobility. The MEU is ideally suited for operating in urban terrain because it has sufficient infantry to conduct missions and secure armored vehicles, and the armored vehicles can provide significant firepower and protection to assist in infantry maneuver against the enemy. This same infantry-armor-air combination also make a MEU very lethal and survivable in restrictive terrain where a large mechanized formation would run into trouble, but a few armored vehicles supporting infantry is an efficient combination.

Another aspect of the MEU that bears consideration is its relatively short life. Each MEU typically exists for only fifteen months. As stated before, a MEU is not an organic organization. Much like the Army BCT, it is a force assembled from larger units for a limited duration for a specific purpose. A typical MEU is formed from other units on a rotational basis. Once formed, the MEU conducts a nine month training program with the GCE, ACE, and CSSE integrated in order to build an efficient combined arms team. Following the nine month training period, the MEU deploys for a six month "float" at sea. During its "float", the MEU may execute a variety of operations across the full spectrum of conflict³⁴ The MEU is capable of executing all of the missions expected of the Army light BCTs. However, the MEU is obviously limited in scope due to its smaller size (only one infantry battalion typically in the GCE).

The MEU has some limitations. Its very nature of being a small and rapidly deployable combined arms force for limited operations means that it requires significant logistical augmentation when deployed for sustained operations. USMC doctrine declares that the MEU is not capable of an assault, meaning that it can not conduct an opposed amphibious assault by itself.³⁵ The limited size of the GCE also limits the scope of operations of which the MEU is capable. Additionally, the relatively small amount of armor and attack air assets in the MEU place it at risk when opposed by a larger mechanized opponent, particularly in open terrain typically suited for mechanized forces.

The Army BCT and the USMC MEU both have inherent capabilities and limitations based on their respective structures. These capabilities and limitations must be considered when planning the employment of these units.

IV. Historical Background

Several operations since the Vietnam war provide excellent opportunities for studying the employment of Army and Marine forces. This chapter will discuss Army BCT and USMC MEU actions in Grenada in 1983, and Somalia in 1993. Each historical case study will begin with a short description of the operation, followed by a discussion of the mission, capabilities, and limitations of the units involved.

Grenada

The U.S. invasion of Grenada took place on 25 October 1983, and was conducted under the operational code name "Urgent Fury". President Reagan decided to deploy the military for intervention following two key events. The first was the execution of the Grenadian prime minister, Maurice Bishop, in the aftermath of a coup staged by the deputy prime minister, Bernard Coard. The second event was Coard's refusal to allow 224 U.S. medical students attending the True Blue School of Medicine on the island to leave.

U.S. interest in events in Grenada dramatically increased in 1979 when Cuban engineers arrived on the island to begin construction of a runway capable of servicing military aircraft. The U.S. continued to watch the island country more closely as events unfolded over the years until the actions of October 1983 compelled President Reagan to act.

U.S. forces deployed to Grenada with a three fold mission to ensure the safety of American citizens on Grenada; restore democratic government on the island, and eliminate the Cuban presence on the island.³⁶ The ground forces designated for execution

of Urgent Fury were provided by the Army and the Marine Corps. Both forces played key roles in the success of the operation. Urgent Fury began on 25 October 1983, and ended 2 November 1983 when U.S. forces had accomplished all three missions.

The Army

The Army ground forces that deployed to Grenada consisted of Ranger and airborne infantry battalions (along with special operations forces), which deployed and fought as light infantry. Their mission was to seize the Point Saline airfield, rescue the American medical students, and destroy or capture Cuban forces on the island. The forced entry at Point Salines airfield was achieved by 1/75 and 2/75 Ranger battalions. This force was reinforced throughout the invasion with a total of six airborne infantry battalions (two brigades) from the 82nd Airborne Division by air-landing on the captured Point Salines airfield. The Army forces were supported by aviation lift and attack assets, but no tanks or armored vehicles of any type were deployed.³⁷ Subsequently, the mobility of the Army forces was restricted to foot or helicopter movement. Advance by foot was slow in the face of determined resistance, and helicopter movement was vulnerable to ground fire at the point of insertion in most cases. The presence of Cuban BTR-60PB armored personnel carriers (APC) posed a significant threat to the initial entry forces due to the mobility, firepower, and protection afforded their crews. The Cubans and Grenadans attempted a counter-attack on the U.S. held airfield during the afternoon of 25 October with three of these vehicles while elements of one of the airborne infantry battalions were unloading from an Air Force C-141 Starlifter. The Rangers defeated the counterattack with hand-held anti-tank weapons and timely close air support.³⁸ The Lind

Report, a study commissioned by the Joint Chiefs of Staff in the aftermath of Operation Urgent Fury, alleges that the slowness of advance by Army forces was due to frontal attacks made against Cuban positions in the vicinity of the airfield. Mark Adkin, in his book *Urgent Fury*, dismisses the allegation by pointing out that all attacks conducted by Army forces landed on the flanks of Cuban positions.³⁹ Once the majority of the fighting was over by 28 October, the Army forces were still hampered by low mobility and limited availability of helicopters to move six infantry battalions (both Ranger battalions had departed for the U.S. on 28 October) around the island. The Army forces resorted to contracting or borrowing Grenadan vehicles to move U.S. Army units around the island to completely secure it.⁴⁰

The Army forces had several capabilities. The most important of which was their rapid deployability. Air Force aircraft were able to parachute two battalions and airlift six more in a matter of three days. Another significant capability was the ability of the infantry battalions to operate in restrictive terrain. Finally, the capability of operating effectively in an austere environment without a cumbersome support structure allowed a force of such size to rapidly deploy and defeat the Cuban and Grenadan forces.

Army forces employed in Grenada suffered from some limitations that, although significant, did not seriously effect the outcome of Urgent Fury. The firepower of Army units was limited to small arms. They had to rely on Air Force or Marine aircraft to augment their firepower. The mobility of Army forces on the island was seriously limited. Although Army and Marine helicopters were available and played a significant role in moving U.S. forces around the island, they were not sufficient to provide effective

mobility for the size of the U.S. force deployed. This is evidenced by the Army's use of contracted and commandeered civilian vehicles to move infantry around the island.

Protection of Army infantrymen was limited to whatever cover individual soldiers could find or create. This caused Army infantrymen to be vulnerable to enemy small arms fire when assaulting their positions.

The Marines

The USMC contribution to Urgent Fury was the 22nd Marine Amphibious Unit.⁴¹

The mission of the Marines was to seize Pearls Airfield in the northern half of the island and move south to link up with Army forces in the southern half. They also had the mission to destroy or capture any Cuban and Grenadan forces they found.

The Marine forces gained forced entry by initially landing infantry in the northern part of the island in the vicinity of Pearls airfield and the town of Grenville with organic helicopters from the 22nd MAUs ACE. The second point of entry for the USMC was amphibious in the vicinity of Grand Mal on the west coast of the island. From there, USMC infantry supported by tanks, AAVs, and combat aircraft, were able to move rapidly south to link up with Army forces pushing north from the Point Salines Airfield. This effect of combined arms resulted in Grenadan Army officers at a staff meeting held late in the evening of 25 October to agree that it was "suicide to fight the Marines."⁴² There was obviously no feeling of hopeless resistance with regard to the Army Rangers and paratroopers because the Grenadans and Cubans felt that they were facing only infantry supported by aircraft as opposed to infantry supported by tanks, APCs, and aircraft.

The capabilities of the Marine unit employed in Grenada were consistent with a combined arms force. The Marines were able to rapidly deploy from their ships to conduct air and amphibious assaults in two locations during Urgent Fury. The Marine infantry had the capability of operating in restrictive terrain. The presence of tanks, AAVs, attack and lift helicopters provided mobility, protection and firepower.

The most significant limitation of the Marines on Grenada was the physical size of the unit. The Marines were limited to one reinforced infantry battalion. Although this force was very capable due to its all arms structure, the Marines were limited in the scope of what they could accomplish on the ground.

The examples of the Army and Marine forces on Grenada represent two contrasting examples of operations in the same campaign. Although the Army Rangers and paratroopers arguably faced a better led, organized, and disciplined foe in the form of the Cubans, the inherent limitations of their organizational structure translated to limitations in combat. The Marines possessed protected and rapid ground mobility and fire power from its armored vehicles. It also had air mobility and air fire power from its aviation assets. Overwhelming numerical superiority in infantry was not needed. The synergistic effect of a fully combined arms team was sufficient to carry the day. The lack of armored vehicles did not prevent the Army forces from accomplishing their mission, but it certainly could have allowed them to do it quicker and possibly with less loss of life.⁴³

Somalia

President Bush announced to the world on 4 December 1992 that the United States would deploy ground forces to Somalia with the mission to establish a secure environment for humanitarian relief operations. Other nations followed the U.S. lead and agreed to deploy troops as well. These nations included Australia, Canada, Italy, and France. The U.S. led peace operation, designated the "Unified Task Force," or UNITAF, would set the conditions for a U.N. controlled peace keeping operation. The first U.S. force arrived in Somalia on 9 December 1992. The U.N. assumed control of the operations on 4 May 1993 as UNOSOM II (U.N. Operations in Somalia II). The U.S. provided Army and Marine ground forces to both operations, and withdrew all units from Somalia on 31 March 1994 after losing 214 Americans; 42 killed and 175 wounded.

The Army

Perhaps the greatest military disaster to befall the Army since the attempted hostage rescue in Iran occurred in Mogadishu, Somalia on 3 October 1993. The Army forces deployed for the U.N. mission to Somalia (UNOSOM II) consisted of light infantry from the 10th Mountain Division (Light), Rangers of 3/75, and some special forces to include elements of Delta, and Task Force 160. The U.S. forces had no APCs or tanks, only sand-bagged Humvees and five ton trucks. No fixed-wing close support aircraft were available. The only attack aviation available came from AH-1 Cobra attack helicopters of 10th Mountain division aviation and AH-6 "Little Bird" helicopters of Task Force 160. Although helicopters provided some mobility for Army forces in Somalia, mobility in the urban terrain of Mogadishu was limited to foot or sand-bagged

vehicles. Requests for AC-130 gunships, M1 tanks, and M2 Infantry Fighting Vehicles to provide added protection, mobility, and firepower required for combined arms operations in an urban environment were denied at the highest level for fear of escalating the conflict.⁴⁴

The Mission of Army forces on 3 October 1993 was to capture two key subordinates of Aidid in a market district known as the “Bakara”, an area of Mogadishu considered the heart of Aidid territory. The plan called for insertion of Rangers and Delta operators by helicopter to seize the two men. A twelve-vehicle convoy of three five-ton trucks and nine Humvees manned by over fifty Rangers from 3/75 would then travel from the U.S. base on the international airfield to the site to extract the raiding teams and the prisoners. A quick reaction force (QRF) consisting of a light infantry battalion from the 10th Mountain Division stood ready to provide assistance from the U.S. base on the Mogadishu airfield.

The most significant capability of the Army force was its ability to operate in the restrictive terrain of an urban environment. As a light infantry force, it was also able to operate with an austere logistical support structure. The Army also had lift and attack helicopters to provide rapid movement and added firepower.

The urban environment of Mogadishu highlighted the limitations inherent in a light infantry organization. The Army forces lacked protection because they had no armored vehicles in their structure. Although there were some helicopters, their ability to provide added firepower was limited by their relatively small number, and the dangers presented by Somali weapons fire directed at them from buildings and roof tops. Army

mobility was limited to unprotected vehicles and foot movement. Helicopters provided some mobility, but the areas they could land to support operations were limited by the urban terrain and hostile fire.

The raid was a success in that it achieved surprise and allowed the Delta men to snatch their prisoners. However, the Somalis quickly reacted by surrounding the area and pouring tremendous small arms and rocket-propelled grenade (RPG) fire into the Rangers. Two helicopters were shot down and four others were hit and forced to leave the fray and land, badly damaged, near the international airport. The Rangers and Delta commandos were pinned down and suffered heavy casualties as they attempted to rescue the crews of the two downed aircraft while extracting themselves by vehicle back to the safety of U.N. held areas. The fate of the second helicopter carrying CWO Michael Durant was decided when an ad-hoc force of Rangers and light infantry from 10th Mountain attempted to drive through the streets of Mogadishu in Humvees and trucks and were turned back by intense small arms and RPG fire from all around. The group of Rangers who had moved by foot to protect the crew of the first downed helicopter could not extricate themselves from the area. The streets and buildings surrounding them were too narrow to allow extraction by helicopter under fire, so a ground evacuation had to be executed by light infantry of the 10th Mountain Division. Better armed U.N. forces offered help in the form of armored vehicles and infantry. The closest U.N. forces to offer assistance were the Pakistanis and Malaysians, who offered M-48 tanks and Soviet BRDM armored cars respectively.⁴⁵ Although such assistance was welcomed and critical, it took over three precious hours to put together and deploy because the special

operators had not coordinated ahead with the 10th.⁴⁶ Mountain Division task force or other friendly U.N. forces. During that time, Durant was captured and the two Delta commandos attempting to hold off the Somalis until help arrived were killed, while more Rangers fell killed and wounded at the first helicopter crash site. "High tech" armored vehicles (such as M1s or Bradleys) were not required against small arms fire and RPGs, the relatively obsolete armored vehicles of the Pakistanis and Malaysians were sufficient to provide protected mobility for the U.S. light infantrymen to their objective area.

Fifteen hours after the raid to snatch the Aidid men was launched it came to an end as the light infantrymen of the 10th Mountain Division, supported by friendly *foreign* armored vehicles effected a link up with the raiding force. The U.N losses for that operation were 19 U.S. killed and missing, and 84 U.S. wounded. One Malaysian soldier was killed, seven Malaysian and two Pakistani soldiers were injured. The U.S. also lost two helicopters destroyed along with four others that were badly damaged. One Five ton truck was destroyed and several Humvees required extensive repairs.⁴⁷

The events of 3 October were by all means not the first time that Army forces felt the disadvantages of not having a fully combined arms force in the urban environment of Mogadishu, but it certainly was the most costly and left the largest physical, psychological, and political signature of the U.S. involvement in Somalia. The sporadic contact with hostile Somalis increased in September to include the downing of a UH-60 helicopter by an RPG as it was evacuating three wounded soldiers.⁴⁸ In the aftermath of the 3 October fight, the U.S. deployed the earlier requested AC-130 gunships and armored vehicles to enhance the force protection capability of the U.S. forces already

deployed for UNOSOM II.⁴⁹ Although this act has been repeatedly declared as too little too late in much of the literature concerning Somalia, some useful information did come from the Center For Army Lessons Learned (CALL) in its *U.S. Army Operations in Support of UNOSOM II. Lessons Learned Report*. This report said:

Although light infantry is the force most capable of meeting the demands of MOUT, task organizing with combined arms elements provides key resources needed to increase visibility, force protection, firepower, and combat engineering capabilities in the confined MOUT environment.⁵⁰

One can not help but consider that if the original task-organization of the U.S. Army forces in Mogadishu had been properly structured to include armored vehicles and attack aircraft, Americans could have been spared the agony of seeing the bodies of U.S. soldiers dragged naked through the streets of Mogadishu by Somalis while Aidid held the wounded Durant captive. The presence of U.S. armored vehicles would certainly have enabled the rapid rescue and extraction of the Rangers and downed helicopter crews.⁵¹ The report also noted that once a heavy task force was deployed to Somalia, it was not capable of acting independently of light infantry in urban terrain because the tanks and Bradley Fighting Vehicles (BFV) were vulnerable to light anti-tank weapons at short range, and their crews were vulnerable to sniper fire when exposed. Concerning task-organization, the CALL lessons learned report concludes with this recommendation:

Review U.S. Army doctrine to ensure it addresses the process of task-organizing forces to achieve the desired results in OOTW; ensure this is covered in leader development courses of instruction.⁵²

There were many other factors of a political and military nature that influenced the outcome of events on 3 October 1993. One of them was the failure of Delta and the Rangers (supposedly for reasons of secrecy) to coordinate with the light infantry task

force Quick Reaction Force (QRF) in advance. However, the most important factor that can not be over emphasized is that the presence of armored vehicles and attack aircraft to support the infantry in urban terrain would have provided a combined arms task-organization that would have increased the firepower, protection, and mobility of Army forces, and significantly reduced the loss of American lives and equipment.

The Marines

The USMC deployed a MEU to support UNITAF, and it departed once the operation reverted over to UNOSOM II. The USMC deployed another MEU to increase security of U.S. forces in Somalia following the 3 October 1993 incident. In both cases, the Marines suffered slight casualties, but nothing like what occurred on 3 October.

The mission of the first MEU deployment mirrored the UNITAF mission of providing a safe environment for humanitarian relief operations. The second MEU deployment had the mission of protecting U.S. forces in Mogadishu and providing a secure environment for withdrawal on 31 March 1994.

The MEUs were able to rely on several key capabilities for success in Somalia. MEU commanders were able to provide mobility, firepower, and protection for their units because of their all arms structure. The Marine infantrymen were also able to operate as light infantry in the urban environment of Mogadishu, which allowed for successful operations.

As in Grenada, MEU commanders were limited in the scope of their employment due to the relatively small size of the GCE. This limitation was not a significant factor due to the nature of the threat and the terrain in Somalia.

The Future

By looking at the trends for U.S. military involvement abroad since the end of World War II, perhaps we can understand what future deployments may look like, and be better organized, equipped, and trained to react to them. Here is a list of U.S. military actions involving ground troops since the close of the second World War:

* Korea	1950 - 1952
* Lebanon	1958
* Dominican Republic	1965
* Vietnam	1965 - 1973
* Lebanon	1982 - 1984
* Grenada	1983
* Panama	1989
* Persian Gulf	1991
* Somalia	1993
* Haiti	1994 - present.
* Bosnia	1995 - present.

The missions of U.S. ground forces in these deployments and conflicts have been varied. They have ranged from low to mid to high intensity conflict. Most of the above operations were the result of crisis response. None of the above were conflicts with a peer opponent where the fate of the United States was at stake.

The enemy in all of the above actions was never a peer opponent. The two most costly conflicts (Korea and Vietnam) involved an enemy that was technologically inferior to the U.S., was infantry based with little or no mechanized forces, and fought an unconventional style of warfare. Iraq is the only opponent since the second World War that had a relatively modern mechanized army who fought U.S. ground forces in a conventional style war. Lebanon (twice), Somalia and Bosnia all involved multiple factions. The Dominican Republic, Grenada, Panama, and Haiti were all intervention

operations that pitted U.S. troops against a country's military in order to replace a deposed government or allow a duly elected one to take charge.

With the exception of the Persian Gulf war in 1991, every deployment since World War II has seen U.S. ground forces operating in predominantly restrictive terrain. All, with the exception of the Gulf War, have included extensive operations in urban terrain. Urban terrain in the Dominican Republic, Lebanon, Panama, Somalia, and Haiti dominated the maneuver space of U.S. forces.

The time available for action or response in operations since World War II has condensed. Every one of the above operations required some degree of rapid response as opposed to a gradual build up of forces. Rapid deployment in a matter of hours or a few days was critical to success in Korea, Dominican Republic, Grenada, Panama, Desert Shield, and Haiti.

The majority of the operations listed above required units to deploy with little or no time to train for the specific mission. Units had to be prepared to deploy "as is" which mandates a high training tempo. Almost all of the actions relied on regular active duty forces to bear the brunt of combat operations.

The trend of U.S. military operations since World War II has indicated that future operations will continue to be contingency in nature. The enemy will most likely not be a peer opponent, but will range from an infantry based guerrilla army to one organized and equipped to fight as a mechanized all arms army. Restrictive terrain, and increasingly urban terrain, will dominate the battlefield or area of operations. The time available to U.S. forces to react to future crisis will continue to be little, which will require forces that

can deploy as they are in a matter of hours. The troops available for rapid response with the training necessary to operate in restrictive terrain with little or no specific preparation will continue to remain the domain of a regular active duty force.

V. Analysis

This chapter will use the elements of the author's model for a combat effective organization (recall that these are *combined arms, command and control, lethality and survivability, mobility, and flexibility*) to evaluate the BCT and the MEU. This chapter will evaluate each type of Army BCT against each element of the model, and then do the same with the USMC MEU. This chapter will then close with a summary of the analysis of the BCTs and the MEU.

The Heavy Brigade Combat Team

Combined Arms: The heavy brigade organized for combat as depicted in FM 71-3 (Appendix A) certainly appears to have all the elements of a combined arms team. The task-organization of a light infantry battalion and an attack aviation battalion in addition to combat engineers and self-propelled (SP) artillery give this organization a truly combined arms structure.

Aviation is another misleading element of the combined arms equation when considering the heavy BCT. Although FM 71-3 shows an attack aviation battalion OPCON to the typical heavy BCT, this is not always possible. Only two attack aviation battalions exist in the Table of Organization and Equipment (TOE) for a heavy division,

which means that one or more of its maneuver brigades will go into a fight without being a fully combined arms team.⁵³

Command and Control: The heavy BCT has the C2 infrastructure that allows it to maintain effective C2 over all the elements within its organization.

Lethality and Survivability: The heavy BCT is without doubt one of the most lethal organizations in the Army. The firepower, range, and target acquisition capabilities of the weapons systems contained in the heavy BCT provide it with the destructive capability to defeat any opponent. Additionally, the protection afforded to crews and dismounted infantrymen by the armored vehicles provides a high degree of survivability in almost any environment. However, the lethality and survivability of the heavy BCT can be significantly reduced in restrictive terrain, and especially in an urban environment. Under such conditions, the stand off afforded by the range and target acquisition capabilities of its major weapon systems is reduced. The cover and concealment conditions in restrictive terrain also allows the enemy to get closer and attack armored vehicles from the flanks, top, and rear with light anti-armor weapons, and engage exposed crewmen from close range with small arms fire. The experience of French "Mobile Groups" in Vietnam in 1954 best illustrates how an infantry based enemy with light anti-armor weapons can use restrictive terrain to deny an armored force its inherent qualities of protection and firepower to destroy it.⁵⁴

Mobility: The mobility of the heavy BCT is naturally good both on and off road. The speed with which armored vehicles can reposition on the battlefield and exploit gaps in the enemy to create a shock effect in the enemy ranks is a combat multiplier. The only

negative aspect to the mobility of a heavy BCT is, again, tied to restrictive terrain. Restrictive terrain can negate off-road mobility by limiting trafficability to roads. This becomes a danger to the heavy BCT because it allows the enemy to canalize the heavy BCT, and denies the heavy BCT the ability to mass against the enemy. Another limitation in the mobility of the heavy BCT are bridges. The weight classification of bridges in most countries outside Europe and the United States will not support the traffic of modern armored vehicles. Not only does this limit mobility, it then forces the expenditure of engineering assets to reinforce existing bridges or to erect new ones.

Flexibility: The heavy BCT as described in FM 71-3 contains a great deal of flexibility, because the BCT commander has the assets to fight against a peer opponent or execute peace enforcement operations in an urban environment. However, the reality of the typical heavy BCT that we see at the NTC or in Bosnia severely limits the ability of the heavy BCT to effectively accomplish a variety of missions in restrictive terrain and in an OOTW environment. The typical heavy BCT is still more suited for engaging the old Soviet style motorized rifle regiments and divisions in central Europe.

The Light Brigade Combat Team

Combined Arms: Of all the BCTs discussed, the light infantry BCT has the least ability to fight as a combined arms team. This is due to the lack of armored vehicles in the structure of the light division, and the limited amount of attack aviation assets available. Additionally, the typical BCT organization outlined in FM 7-30 does not depict a light BCT task-organized with aviation assets. All light family (Light infantry,

airborne, and air assault) BCTs also have engineers, 105mm towed howitzers, and Stinger air defense systems.

Command and Control: The light brigade has the necessary C2 facilities to handle all of the elements normally contained in its structure.

Lethality and Survivability: Firepower in the light infantry is roughly limited to small arms. The infantry battalions of a light infantry BCT have only one platoon of four vehicle-mounted TOW systems for anti-armor capability. The bulk of a light BCT's anti-armor capability is in the rifle squad and platoon level in the form of hand-held anti-armor weapons. As the Javelin is fielded to light infantry divisions, the anti-armor lethality of the light BCT will increase dramatically.⁵⁵ The light BCT is most effective in restrictive terrain where it can take advantage of infiltration to mass on an enemy's flank or rear. Open terrain more suited for the heavy BCT presents a problem for the light BCT when facing an armored opponent. The light BCT has little or no protection from enemy weapons systems during movement, and must rely on "digging in" for protection when halted or defending.

Mobility: The mobility of the light BCT is limited to how fast an infantryman can walk with a rucksack and his weapon. Aviation assets provide a significant increase in mobility for light infantry, but the light infantry division possesses only enough lift helicopters to transport one rifle battalion at a time.⁵⁶ A light BCT can only count on such assets for specific missions. Additionally, light brigades possess very little vehicle transportation which is not nearly enough to rapidly transport large bodies of infantrymen around the battlefield.

Flexibility: Although infantrymen can traditionally fight anywhere, the light BCT lacks the ability to realistically task-organize itself to meet a wide variety of threats on virtually any terrain. The light BCT is ideally suited for any OOTW mission but can run into danger in urban areas (such as in Somalia) if not supported by armored vehicles and air. The light BCT requires careful terrain selection or the addition of significant assets to face an armored opponent in most terrain.

The Airborne Brigade Combat Team

Combined Arms: The Airborne BCT has the greatest potential for being employed as a combined arms team. The presence of an armor company, and a company each of aerial reconnaissance, lift, and attack helicopters, give the Airborne BCT commander tremendous potential for obtaining the synergistic effect desired from the employment of combined arms (See Appendix C). Additionally, all the assets contained in the typical Airborne BCT depicted in FM 7-30 are contained in the structure of the parent division, so the opportunity for habitual training and operations exists.⁵⁷

Command and Control: The airborne BCT has the same C2 capabilities and limitations as the heavy BCT.

Lethality and Survivability: The lethality of the airborne (ABN) BCT is significantly higher than the light infantry BCT for three reasons. First, the ABN BCT contains a heavy company/team. Second, it has dedicated reconnaissance, lift, and attack helicopter assets. Third, the airborne infantry battalion has an entire company of vehicle-mounted TOWs as opposed to one platoon. Other than these three factors, the ABN BCT

is subject to the same strengths and limitations in lethality and survivability as the light infantry BCT.

Mobility: The ABN BCT has slightly more wheeled vehicles in its structure than the light infantry BCT, but it is not a significant difference in mobility. What does give the ABN BCT more mobility is the dedication of a lift aviation company capable of transporting a full rifle company at a time, and a heavy company/team. Other than these two additions in mobility assets, the ABN BCT has the same mobility features as the light infantry BCT.

Flexibility: The ABN BCT has a great deal of flexibility inherent in its structure. It is well suited for operations in any environment throughout the spectrum of conflict. The ABN BCT can effectively operate in restrictive terrain, and is ideally structured for missions involving urban areas. The ABN BCT can also face a heavy opponent and expect success depending on the terrain, especially since the advent of the Javelin.

The Air Assault BCT

Combined Arms: The air assault (AASLT) BCT is a unique organization and some interesting capabilities based on its heavy complement of helicopter assets (See Appendix D). The AASLT BCT does not typically have armored vehicles in its structure, but the effect they would add in a fight is provided by the presence of an entire battalion of attack helicopters. Additionally, all the assets contained in the AASLT BCT are organic to the parent division. This allows for habitual training relationships that breed familiarity and effectiveness when deployed for actual operations.

Command and Control: The C2 capabilities of the AASLT BCT are similar to the ABN BCT. C2 relationships are familiar and established because all assets contained in the AASLT are organic to the parent division. Habitual association through simulations and training facilitate a good C2 structure.

Lethality and Survivability: The infantry battalions of the AASLT BCT are identical in structure to the ABN BCT, and have the same capabilities and limitations. The presence of an entire battalion of AH-64 attack helicopters provides a very lethal asset for defeating infantry and armor. The presence of Javelins and TOWs combined with the effects of the AH-64 enable the AASLT BCT to operate effectively against an armored opponent as well as a dismounted opponent. The lack of any armored vehicles in this organization places the infantry of the AASLT BCT at a similar disadvantage with the light BCT when operating in an urban environment. Infantrymen in the AASLT BCT are also subject to the same survivability limitations as light infantry once they are on the ground. The lethality of an AASLT BCT can be significantly reduced if its helicopters are unable to fly due to adverse weather conditions.

Mobility: The AASLT BCT typically has three lift aviation companies in its structure. This allows for the movement of a rifle battalion in one lift. Other than this capability, the AASLT BCT has the same mobility characteristics as the light infantry BCT. However, the ability to rapidly move an entire infantry battalion anywhere on the battlefield, regardless of terrain, supported by AH-64 attack helicopters and sling-loaded 105mm howitzers constitutes a significant tactical capability in any environment. Again, bad weather can ground helicopters and limit mobility.

Flexibility: The presence of such a large element of reconnaissance, lift and attack aviation provides the AASLT a great deal of flexibility. The AASLT BCT can meet any threat under any circumstance across the spectrum of conflict.

The Marine Expeditionary Unit

Combined Arms: The MEU most closely resembles the ABN BCT in that it contains infantry, armor, and aviation in addition to engineers, artillery and air defense assets (See Appendix E). The fact that the MEU trains as a combined arms team for six months prior to deploying greatly enhances the ability of the MEU to operate as a combined arms team.

Command and Control: The best aspect of the MEU in regard to its C2 effectiveness comes from the nine month train-up period conducted by the MEU as a team prior to its deployment. This establishes a familiar C2 structure and a operating familiarization that enhances combat effectiveness and flexibility.

Lethality and Survivability: The MEU is designed to be a combined arms team for the purpose of taking advantage of the synergistic effect of combined arms. The combination of tanks, APCs, LAVs, attack helicopters and fixed-wing aircraft, infantry, artillery, and engineers, make the MEU a lethal force structure for a variety of contingency missions. This combination also increases the survivability of the MEU even though the GCE is basically a light infantry battalion. However, the ability of the MEU to conduct sustained operations is limited in scope because the GCE is one battalion, and the ACE is one squadron.

Mobility: The MEU has a high degree of mobility. Its structure allows for rapid movement of combat power in any terrain. The MEU commander can move his entire GCE by transporting one third in helicopters, one third in the AAVs, and one third in wheeled vehicles if necessary.

Flexibility: The MEU is capable of task-organizing itself for successful operations across the entire spectrum of conflict because of its special structure. The nine month train up period of the MEU also assists in enhancing flexibility. The MEU commander is able to employ his Marines effectively based on the situation and the terrain. However, the MEU can run into difficulties when facing a larger, well equipped opponent, due to the size of the GCE and ACE. The structure of the MEU is highly flexible, and well suited for any possible contingency operation, but its size restricts the scope of its employment.

Based on the analysis conducted by evaluating each BCT and the MEU against the criteria established by the model, we can make some determinations on the combat effectiveness of these units. The Heavy BCT, the airborne BCT, and the MEU each readily met all the criteria of the model. Each of these organizations is structured to provide the unit with an all arms force. The air assault BCT met most of the criteria, and has the potential to be a very lethal force. However, the lack of armored vehicles limits the all arms aspect of a combined arms organization. It also reduces the survivability of the infantry, which are foot bound once on the ground. The light infantry BCT met the least amount of the criteria, because it is not an all arms organization, has low lethality and survivability, and is limited in mobility and flexibility.

VI. Conclusions and Recommendations

This monograph had a primary and four subordinate research questions. The primary research question asked if the Army brigade combat team organization can effectively meet the Army's needs out to 2010. The first subordinate question asked what will be some of the characteristics the future battlefield. The second subordinate question asked if there are any other organizational models to serve as examples for improving the current organization of the BCT. The third subordinate question asked what similarities and differences existed between the BCT and the MEU. The final subordinate question asked how we can improve the organization of the BCT. This final chapter will refer back to the body of the monograph to answer these questions.

The Army brigade combat team can effectively meet the Army's needs out to 2010 when the Force XXI initiative begins. Nothing in the historical case studies or the evaluation of each BCT against the model criteria suggests that the structure of the BCT is flawed. The light infantry BCT certainly appears to be the least effective combined arms organization when compared against the model criteria. The limitations experienced in Grenada were the result of not deploying airborne BCTs in accordance with organizational doctrine. Two airborne BCTs were deployed without their doctrinal accompaniment of tanks and helicopters. In Somalia, Army planners were aware of the limitations of the light infantry and sought to correct them by deploying armored vehicles and attack aircraft. However, the reinforcement of the light BCT organization was denied at presidential level. The trends of past and recent operations suggest that Army forces will continue to be called upon to execute missions much like those it has since World

War II. The current organization, training, equipment, and doctrine of the BCT can effectively meet those needs.

The analysis of the trends of past and recent operations in chapter IV provides some insight into the characteristics of the future battlefield. Missions will continue to be contingency in nature. The enemy will most likely not be a peer opponent. The terrain will be predominately restrictive with a high chance that it will be urban. The time available to react to future situations will continue to require the ability of units to rapidly deploy as they are in a matter of hours. The combat troops available for such operations will be regular active duty soldiers who prepare for such operations with a high training tempo.

The introduction discussed several possible organizational models to serve as examples for improving the current organization of the BCT. The USMC MEU proved to be the most optimal for several reasons. The MEU, as an organization in the U.S. armed forces has the same national requirements as the Army BCT. The MEU has much of the same equipment as the Army BCT. Finally, the MEU has a recent operational history that is very similar to that of the Army BCT.

Chapter II discussed the similarities and differences between the Army BCT and the USMC MEU. The structure of the MEU is very similar to the heavy BCT and the airborne BCT. These organizations all have an all arms force structure designed to provide the synergistic effect of combined arms in a fight. The flexibility and versatility afforded these units because of their organization is also similar. The air assault and light infantry BCTs are not complete all arms teams like the MEU and the other BCTs. The

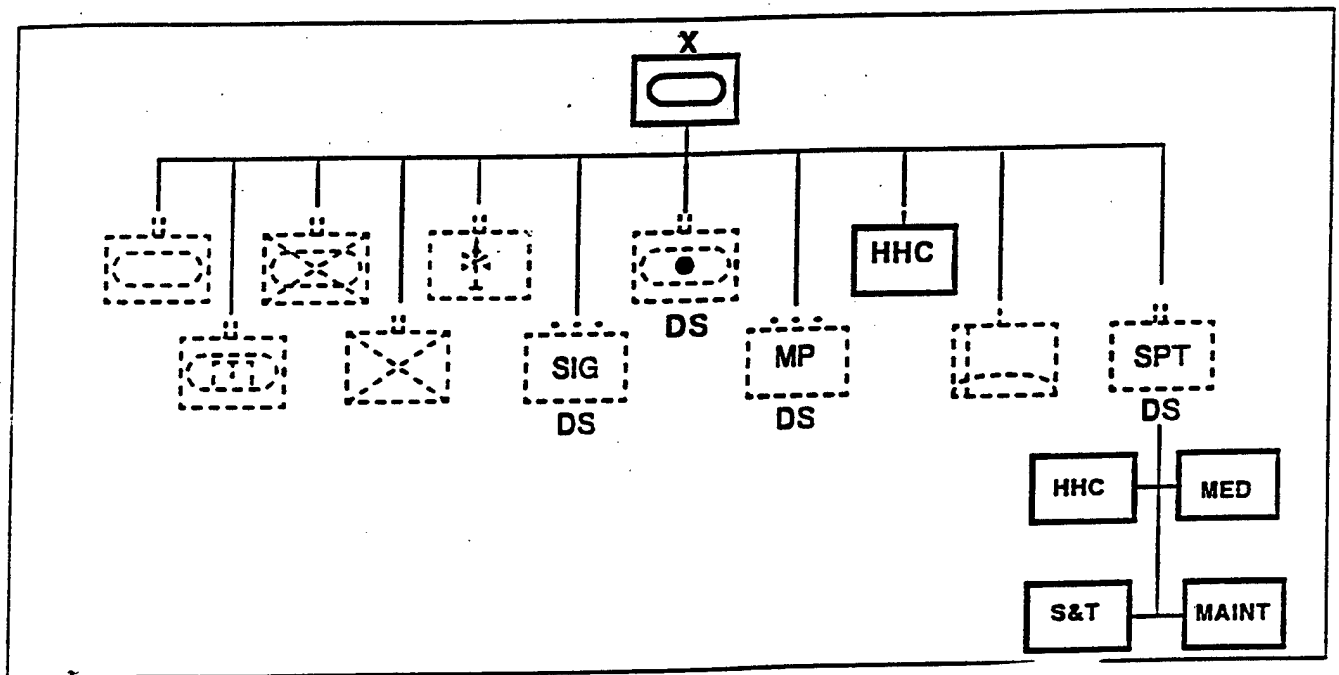
most significant difference between the MEU and the BCT is the fifteen month cycle that dominates the MEU's existence. The elements of a MEU train together for a nine month period after the MEU is formed. Following this train up period and validation evaluations, the MEU deploys for six months at sea. BCTs do nothing like this.

There is no need to reorganize the Army's fighting forces prior to the Force XXI Initiative based on conflict trends and Army performance since the Second World War. Although the MEU is a very effective combined arms force for responding to relatively small contingency operations, the Army airborne, air assault, and heavy BCTs are more than capable of handling any contingency while maintaining the ability to transition to a high intensity fight with a peer opponent if required. The doctrinal conception of Army BCTs enables such employment. The two historical case studies reviewed in this monograph show that we need to follow our doctrine better rather than reorganize how we intend to employ our forces to fight. In each case where something did not go too well for Army forces, the answer was readily available in current doctrine and organization. Nothing radically new was required to "fix" the way the Army is organized to do business. One aspect of the MEU concept that is appealing, however, is the MEU nine month training program prior to deployment. Colonel Macgregor in *Breaking the Phalanx. A New Design for Land Power in the 21st Century*, advocates a similar program that prepares Army force packages prior to entering an available deployability window.⁵⁸ Such a program would solve some of the combined arms structure and C2 familiarity shortfalls discussed in the last chapter.

In *On the Origins of War and the Preservation of Peace*, Donald Kagan tells us that a strong nation maintains the peace it requires to succeed by applying the proper amount of force necessary to keep the peace.⁵⁹ The Army is the principle instrument of the United States for applying that force, and the brigade combat team has been the preferred tactical method the Army uses to execute that mission. Recent experience has illustrated how critical the employment of a combined arms force is to success in *any* operation across the entire spectrum of conflict. The Army doctrine dictating the organization and employment of the Army brigade combat team is based on the requirement to deploy and fight as a combined arms team at the tactical level. All we have to do is follow that doctrine.

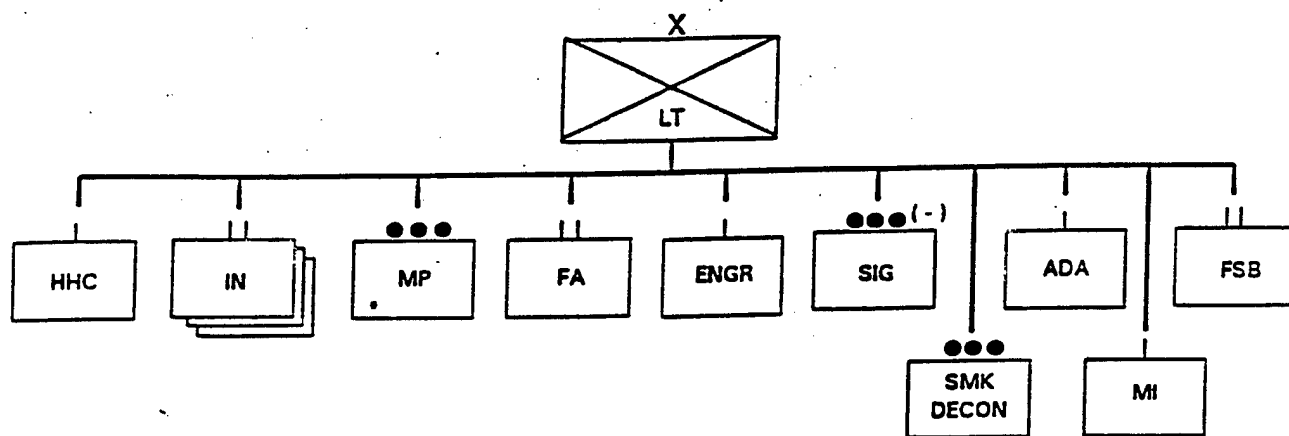
Appendix A. (Typical Heavy BCT Organization)

FM 71-3, 1-3



Appendix B. (Typical Light BCT Organization)

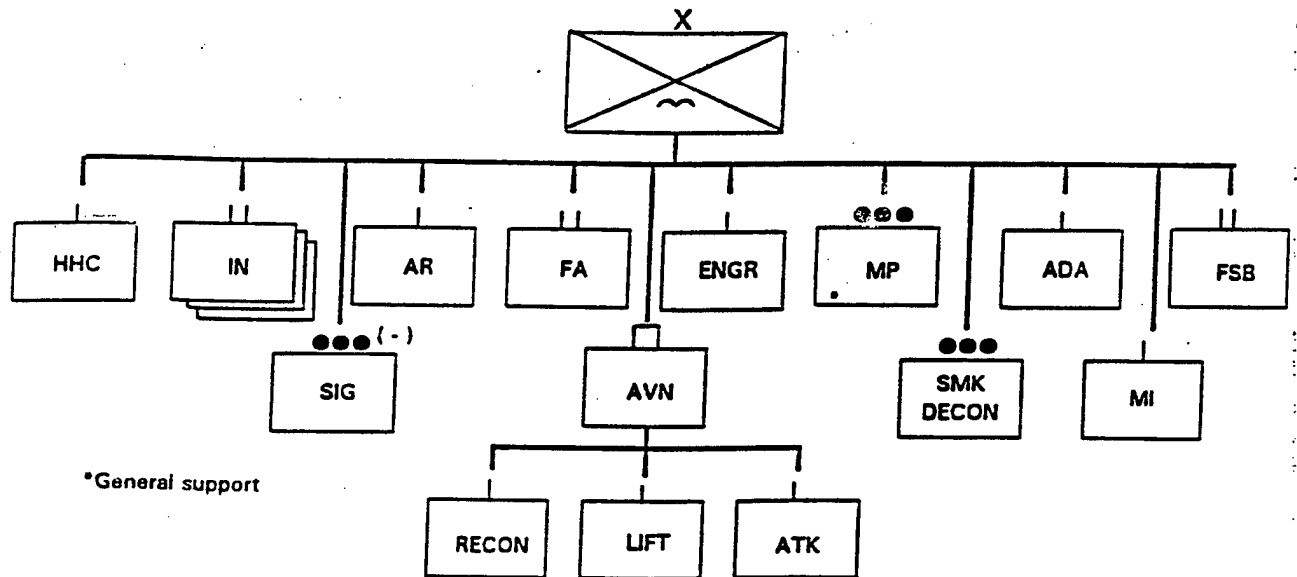
FM 7-30, 1-6



*General support

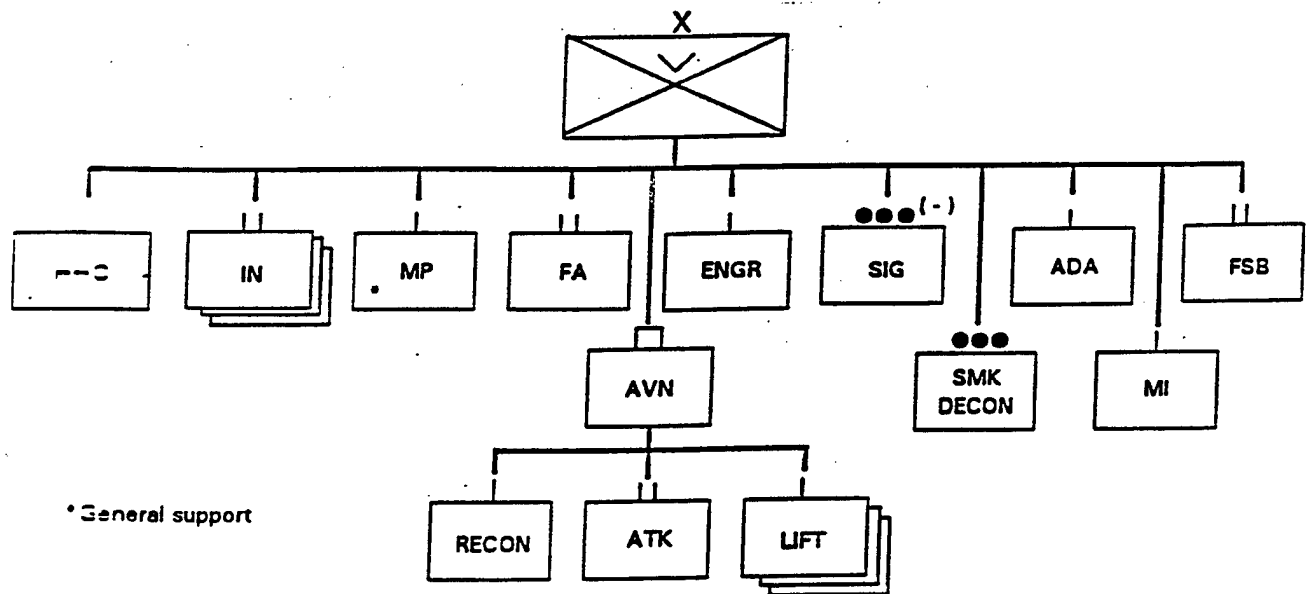
Appendix C. (Typical Airborne BCT Organization)

FM 7-30, 1-7.



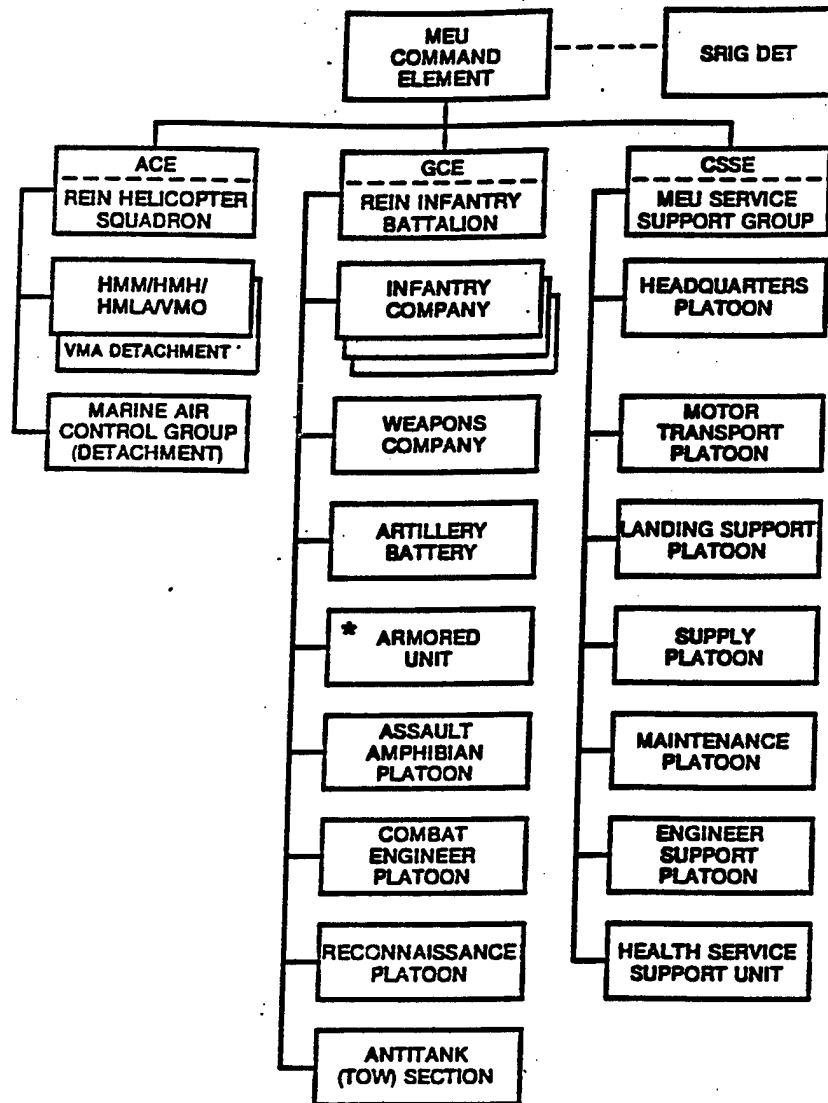
Appendix D. (Typical Air Assault BCT Organization)

FM 7-30, 1-8.



Appendix E. (Typical MEU Organization)

FMFRP 2-12, 32.



* Tanks, LAVs, or both.

ENDNOTES

¹ The Army classifies any operations conducted in peace time as Military Operations Other Than War. These operations can range from aiding hurricane victims in Florida to invading the Republic of Panama to seize Manuel Noriega. For more detailed information, refer to chapters two and thirteen of FM 100-5, *Operations*. Also see FM 100-23, *Peace Operations*.

² U.S. Army, *FM 100-5, Operations*, (Washington, D.C.: Department of the Army, 1993): 2-3. Under a section designated to define combined arms in this manual, it states: "Army forces prefer to fight as a combined arms team. Combined arms warfare is the simultaneous application of combat, CS, and CSS toward a common goal."

³ Ibid, 2-0 - 2-1. The spectrum of conflict ranges from peace to war, and includes combat as well as noncombat operations. Combat operations can occur at any point along the spectrum, but their scope and intensity are governed by the state of the environment.

⁴ The ACR is a corps asset and has a unique structure to conduct specialized missions. For more information, refer to *FM 17-95, Cavalry Operations*.

⁵ For example, the French Force d'Action Rapide (FAR) is equipped and designed to deploy for contingency operations in support of French national objectives. It contains airmobile, airborne, amphibious, and light armored units in its structure. However, the FAR uses a different doctrine for employment when compared to the U.S.. Also there are significant equipment differences compared to the U.S.. The FAR relies on light wheeled armored vehicles for a large portion of its armor and cavalry organizations. Our army has none. There are also differences in helicopter design and employment as well as small arms and tactical organization. Although looking at such foreign organizations is interesting, they can result in an "apples and oranges" comparison.

⁶ The five elements of this model are the author's creation. The definitions of the elements are as follows:

1. Combined Arms: The organization must have the ability to employ all arms in the form of direct and indirect fire weapons systems, to include aircraft, as well as combat support (CS) and combat service support (CSS) assets.
2. Command and Control: The unit has the capability to orchestrate and coordinate the all arms effort to fight as a combined arms team. It must be an established and familiar system that is not based solely on one mission.
3. Lethality and Survivability: The organization must have the ability to defeat any opponent under any conditions while maintaining the ability to protect the force.
4. Mobility: The organization must possess the ability to rapidly position and reposition itself on the battlefield under a variety of terrain conditions.

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5. Flexibility: The organization must have the ability to task-organize itself for effective employment in any terrain and for any type of mission ranging from Operations Other Than War to high intensity conflict with a peer opponent.

⁷ For more information on Force XXI, see *TRADOC Pamphlet 525-5, Force XXI Operations: A Concept for Evolution of Full-Dimensional Operations for the Strategic Army of the Early Twenty-First Century*. The idea behind targeting 2010 to implement the organizational and equipment changes for the Force XXI initiative is the belief that the U.S. Army will not have a peer rival that will require such changes until 2010. Curiously, this sounds a lot like the “Ten Year Rule” which governed British research, development, and procurement between World War I and World War II. This rule stated that British policy in 1919 was that Britain would not require the ability to fight a land war in Europe for ten years (for much the same reasons that the U.S. has focused on 2010 for implementation of the Force XXI initiative). The ten years was up in 1929, and the rule was invoked again to carry the military into 1939. Hitler, of course, shocked the British political masters with his invasion of Poland in Autumn of that same year.

⁸ FM 100-5, 1-1.

⁹ *Ibid.*, 2-2

¹⁰ Refer to FM 101-5-1 for definitions of each type of command or support relationship. Also, FM 101-5 contains a good relationships and responsibilities matrix for command and support relationships on page F-2 Appendix F.

¹¹ U.S. Army, *Field Manual 71-3, The Armored and Mechanized Infantry Brigade*, (Washington, D.C.: Department of the Army, 1995), 1-1 - 1-3.

¹² U.S. Army, *Field Manual 7-30, The Infantry Brigade*, (Washington, D.C.: Department of the Army, 1995), 1-6.

¹³ *Ibid.*, 1-7.

¹⁴ The Armored Gun System was a light tank that could be easily moved by air or sea for contingency operations or in support of cavalry or light and airborne infantry. It was a lightly armored tank that had great speed and mobility, and it mounted an auto-loading 105mm soft recoil gun. The intent was to give cavalry, airborne, and light BCTs a rapidly deployable light tank with the firepower of a main battle tank. The system project was eliminated from the Army's procurement program in 1996 to make funds available for other equipment deemed more important to obtain. The elimination of the AGS caught the Armor branch by surprise, because the 1996 edition of *FM 17-15, The Tank Platoon* contains data, characteristics, and employment considerations for the AGS. For more information on the AGS, refer to *FM 17-15, The Tank Platoon*. John A. Nagi also

wrote an informative article for the 1991 July-August issue of *Armor* titled *The Armored Gun System: Sheridan Replacement Offers Better Firepower plus Worldwide Mobility*.

¹⁵ FM 7-30, 1-8.

¹⁶ Two sources can provide more information about the organization, mission, capabilities, and limitations of the Ranger battalion and regiment. These are FM 7-85, *Ranger Unit Operations*, and appendix D of FM 7-30, *The Infantry Brigade*.

¹⁷ USMC, *Fleet Marine Force Reference Publication (FMFRP) 2-12, Marine Air-Ground Task Force: A Global Capacity*, (Washington, D.C.: Department of the Navy, 1991), 11.

¹⁸ Ibid., 14.

¹⁹ Ibid., 32, Appendix A. Tom Clancy published a book in 1996 titled *MARINE, A Guided Tour Of A Marine Expeditionary Unit*. This book provides a wealth of information concerning the MEU, and it is written for the non-Marine for detailed understanding of the history, organization, equipment, training, mission, capabilities, and employment of the MEU.

²⁰ The MEU that participated in the Grenada invasion was originally destined for Beirut, Lebanon, and had extra CH-46 helicopters for anticipated missions once in Beirut. Also, the MEU that rescued Air Force captain Scott O'Grady in Bosnia after his aircraft was shot down was similarly augmented.

²¹ FMFRP 2-12, 33.

²² FM 71-3, 1-1.

²³ FM 100-5, 2-3.

²⁴ Early editions of FM 100-5 written during the Cold War focused on operations against the Warsaw Pact in central Europe. The 1993 edition of FM 100-5 is the first time since the Cold War that the Army has not been primarily focused on one major potential opponent.

²⁵ FM 71-3, 1-1.

²⁶ FM 7-30, 1-2.

²⁷ FM 71-3, 1-2.

²⁸ Ibid., 1-2.

²⁹ FM 7-30, 1-4.

³⁰ Ibid., 1-4.

³¹ FMFRP 2-12, 31.

³² Ibid., 16-19. Also see *FMFRP 1-11, Fleet Marine Force Organization* for more information about USMC organization at echelons above the MEU.

³³ Ibid., 33.

³⁴ Tom Clancy, *Marine, A Guided Tour of a Marine Expeditionary Unit*, (New York: Berkley Books, 1996), 246.

³⁵ FMFRP 2-12, 33.

³⁶ Daniel P. Bolger, *Americans at War. 1975-1986 An Era of Violent Peace*, (Novato, CA: Presidio Press, 1988), 295.

³⁷ Ibid., 261-351. Also Major Mark Adkin, *Urgent Fury, The Battle For Grenada*, (Lexington, MA: Lexington Books, 1989), 364.

³⁸ Adkin, 225,231.

³⁹ Ibid., 352-353.

⁴⁰ Ibid., 293-312.

⁴¹ The MAU and the MEU are the same thing by a different name. USMC terminology evolved during the late 1980's to change the title of the Marine *Amphibious* Unit to Marine *Expeditionary* Unit. The word "amphibious" was purely a functional description of the organization. It was changed to reflect the USMC's desire to remain relevant as the Cold War ended and funds started to shrink. The USMC wanted to portray themselves as a contingency force and not just an amphibious force. This was partly a political move for fiscal survival. At the time of the name change, the Army had just created a third Ranger battalion and had the 82d Airborne as an even larger contingency force with forced entry capability. With such a force structure, the Army began competing for missions the USMC traditionally regarded as USMC missions. The USMC naturally feared that when Congress met to decide on military appropriations, some would wonder about the need to continue to fund an amphibious corps when the Army could get anywhere in the world with an airborne division and a Ranger regiment. This subtle change in terminology has recently started to cause potential trouble for the fiscal future of the Army. The USMC seriously pushes the issue that they are the nations contingency force ("The World's 911 Force") and that the Army should concentrate on

winning the large wars. What this means to many Marines and Congressmen, is that the Regular Army can grow even smaller since the USMC can initially react to a threat while the Army mobilizes and deploys to win the war. This line of thought is supported by the National Guard Bureau, which recently stated that the Regular Army should grow even smaller since the National Guard can mobilize to fill national military requirements for any crisis.

⁴² Bolger, 338.

⁴³ Akin, 309 and Bolger, 344. The U.S. lost 19 killed, 115 wounded, and 28 nonbattle casualties. The Cubans and Grenadans lost 45 killed and 396 wounded. Only two fatalities resulted from the parachute drop, and those were from parachute failure and not hostile fire (The Cubans defending the airfield were actually instructed not to shoot at Americans except in self defense). Half of the killed were the result of accidents rather than hostile fire as well. The casualty reports all reflect that the vast majority of casualties were suffered in the actual fighting on the ground with Cubans and Grenadans. Based on the casualty data and the experience of the MAU (only seven killed and seven wounded), it is safe to assume that the presence of Army armored vehicles could have significantly reduced the Army's losses.

⁴⁴ Daniel P. Bolger, *Savage Peace. Americans at War in the 1990's*. (Novato, CA: Presidio Press, 1995), 313. General Colin Powell advised the Secretary of Defense, Les Aspin, that armored vehicles and attack aircraft were necessary for protection of U.S. soldiers in Mogadishu but he denied the request for political reasons.

⁴⁵ Ibid., 317-327.

⁴⁶ Ibid., 317-325.

⁴⁷ Ibid., 326-327.

⁴⁸ Ibid., 312.

⁴⁹ Jonathan Stevenson, *Losing Mogadishu* (Annapolis, MD: Naval Institute Press, 1995), 103-107.

⁵⁰ U.S. Army, *U.S. Army Operations In Support of UNOSOM II, 4 MAY 93 - 31 MAR 94*. (Fort Leavenworth, KS: Center For Army Lessons Learned, 1994), I-4-2 - I-4-4.

⁵¹ Stevenson, 105. Stevenson suggests the same thing, but places the ultimate failure with a seriously flawed policy.

⁵² CALL UNOSOM II report, I-4-4.

⁵³ U.S. Army, *FM 71-100, Division Operations* (Washington, D.C.: Department of the Army, 1996), 1-4.

⁵⁴ Bernard B. Fall, *Street Without Joy* (New York: Schocken Books, 1961), 185-250. During their war with the Viet Minh in what was then the French colony of Vietnam, the French employed "Mobile Groups" (Groupement Mobile, or G.M. in French) which were roughly reinforced infantry battalion task forces equipped with light tanks, half tracks, self propelled artillery, and other assorted armored cars and trucks. With these mobile groups, the French attempted to obtain the rapid freedom of maneuver enjoyed later by U.S. troops through use of the helicopter. The mobility afforded by mechanization, coupled with a little bit of disdain for their enemy, tempted the French to commit the G.M.s deep into enemy-held restrictive terrain without mutual support from friendly units. The Viet Minh used terrain to their advantage to catch the G.M.s on roads where the French could only advance and fight in single file. The Viet Minh also used the restrictive terrain to get in very close the French armor and defeat it with satchel charges, and hand-held anti-armor weapons from the flanks and rear. Without armored vehicles, aircraft, or compatible technology, the Viet Minh were able to use the terrain to deny the French mobility, superior firepower, or the ability to mass. The Viet Minh were able to trap the G.M.s and mass their forces against the G.M.s to destroy them piece meal.

⁵⁵ If one were to ask a light infantryman what the ideal anti-armor weapon was, he would describe the Javelin. The Javelin is a man-portable medium anti-armor weapon system that can be carried and fired by a single soldier. It has an unclassified range of 2,500 meters, which gives it the same effective range as most of the worlds best main battle tanks. It is a "fire-and-forget" smart weapon, that allows the gunner to track a target, fire the missile, and immediately seek cover to avoid any return fire fro the enemy. The missile itself burns a synthetic image of its target into its microchip "brain" while the gunner is tracking the intended target. When launched, the missile literally flies itself to the target with a 90% probability of hitting and killing the intended target. The Warhead of the missile can destroy any known tank in the world. It attacks from the top down, meaning that the missile flies over the top of the tank, then fires two shaped-charge penetrators into the roof of the tank (the weakest armored spot on any tank). The missile is also "cold-launched", which means that the missile is initially popped out of the launcher with a small charge, and then ignites the rocket motors once the missile has traveled 30-40 meters in "cold flight." This allows the gunner to fire the weapon from within any small enclosure, such as a bunker or building, without injuring himself with the weapon's back blast. It also reduces the signature of the weapon, allowing the gunner time to seek cover to avoid return fire. Each light infantry battalion will carry eighteen of these weapons, giving them a very lethal defensive *and* offensive anti-armor capability. Such a weapon system now makes light infantry less vulnerable to armored forces in more open terrain considered deadly for light infantry when opposing a mounted opponent.

⁵⁶ FM 7-30, 1-6.

⁵⁷ FM 71-100, 1-6.

⁵⁸ Douglas A. Macgregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century*, (Westport, Connecticut: Praeger, 1997), 149-166.

⁵⁹ Donald Kagan, *On The Origins of War* (New York: Anchor Books, 1995), 1-570.

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